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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :  
SHOZO YOKOYAMA, ET AL. : EXAMINER: BRAHAN, T.I.  
SERIAL NO: 10/588,843 :  
FILED: AUGUST 9, 2006 : GROUP ART UNIT: 3654  
FOR: CRANE AND METHOD OF :  
ASSEMBLING CRANE :

**APPEAL BRIEF UNDER 37 C.F.R. § 41.37**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313  
SIR:

**I. REAL PARTY IN INTEREST**

The real party in interest is KOBELCO CRANES CO., LTD., a Japanese corporation.

**II. RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

**III. STATUS OF CLAIMS**

Claims 1-19 have been cancelled. Claims 20-27 are finally rejected.

**IV. STATUS OF AMENDMENTS**

All amendments have been entered.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

It is known to strive for commonality in parts for a working machine such as a crane in order to reduce inventory and maintenance costs. However it is difficult to extend this concept to the rotating frame of the crane. The rotating frame is the most fundamental part of the crane, and is the part first selected by the designer based on the load/design requirements. Other parts may then be adapted to the particular rotating frame which has been selected.

Any effort to achieve commonality of parts using a common rotating frame creates other problems. For example, an attempt to achieve commonality of parts with a common rotating frame may result in a small capacity crane having an extremely large rotating frame, which substantially increases costs.

The present invention proposes a *limited* commonality or standardization for the rotating frame of a crane (page 16, lines 1-8). Specifically, the commonality of the common rotating frame is limited to a given class of cranes, and is based on the specifications of the model in that class having the largest lifting capacity. However, the rotating frame for each respective class is different from the rotating frames of all of the other classes and can be tailored to the requirements of that particular class. One can therefore reduce the total required number of rotating frames to correspond to the number of classes and so can benefit from commonality for the rotating frame, but can also minimize the problem of a small capacity model having too large a rotating frame, with its attendant increased cost and weight.

More particularly, the claimed invention of Claim 20 comprises:

A family of cranes having a plurality of classes of cranes, each class having a different lifting capability as compared to all of the other classes, each class further including a plurality of models, each model within a given class having a different lifting capability as compared to all of the other models in the given class (p. 7, lines 8-10),

wherein all of the cranes in the family of cranes comprise a lower traveling body (1; Fig. 20) and an upper rotating body rotatably (2) mounted on the lower traveling body, the upper rotating body including a rotating frame (17; Fig. 1) and lifting equipment mounted on the rotating frame, the lifting equipment including a boom (4) and a plurality of types of winches (5-7),

wherein all of the models included in each respective class share a common rotating frame (p. 7, lines 10-11 and 22-23; p. 15, lines 18-24), the common rotating frame of each respective class having specifications based on the model of that class having the largest lifting capacity (p. 7, lines 11-13 and 24-25; p. 14, lines 14-18), and the rotating frame for each respective class is different from the rotating frames of all of the other classes (p. 10, lines 5-7; p. 16, lines 1-8).

The invention of Claim 21 comprises:

The family of cranes according to Claim 20, wherein the common rotating frame in each respective class includes rotating-frame-side winch mounting portions (22-24) for mounting the winches on the rotating frame (p. 16, line 20), each type of winch is provided with a winch-side-mounting portion (25-27; paragraph bridging pp. 16-17), the winch-side mounting portion being common to models in the same class (p. 17, lines 10-12) and different for other classes (p. 17, line 15), and each winch is mounted on the rotating frame by means of the rotating-frame-side winch mounting portion and the winch-side mounting portion (p. 17, lines 16-17).

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 20-21 are rejected under 35 U.S.C. § 103 as being obvious over U.S. patent 6,474,485 (Yokoyama) in view of U.S. patent 3,184,076 (Brown et al).

Claims 22-27 were rejected under 35 U.S.C. § 103 as being obvious over Yokoyama in view of Brown et al and U.S. patent 5,598,935 (Harrison et al).

## **VII. ARGUMENT**

**Claims 20-21 are rejected under 35 U.S.C. § 103 as being obvious over Yokoyama in view of Brown et al.**

### **Claim 20**

Yokoyama proposes modifying a compact working machine to have a lifting capacity at least “one class up,” i.e., the “80-ton class” versus the “65-ton class,” so that a heavier load can be lifted without the need for a large sized crawler body which is difficult to assemble and transport. To this end, a second counterweight is provided between the lower travelling body having the crawler and the upper rotating body of a 65 ton class working machine. Additionally, the capacity of the winches of the working machine is selected according to a crane of “one class up.” See the description of the “classes” of the working machines in the paragraph bridging cols. 3-4; and col. 4, lines 15-19. A higher lifting capacity is therefore possible. Col. 4, lines 23-26. On the other hand, if only the lifting capacity of a 65 ton class crane is desired, the additional counterweight need not be used. Col. 4, lines 51-59.

Accordingly, the teaching of Yokoyama is the *opposite* of what is claimed: Not the claimed features of a common rotating frame for models in a given lifting class, and a different rotating frame for different classes; but a common rotating frame for use in two different classes (80 ton class and 65 ton class).

Additionally, there is no teaching in Yokoyama for the claimed feature that “the common rotating frame of each respective class [has] specifications based on the model of that class having the largest lifting capacity.” Here again, the teaching of Yokoyama is the

*opposite* of what is claimed: to adapt a rotating frame designed with specifications for a *smaller* (65 ton) lifting capacity to accommodate a larger (80 ton) lifting capacity.

Indeed, Yokoyama touts the advantages of using a common rotating frame based on the smaller 65 ton class for higher capacity (80 ton) lifting, and so teaches away from the invention. That is, Yokoyama describes that larger rotating frames cannot be used in narrow fields (col. 1, lines 28-42). This problem is addressed in Yokoyama by providing a compact crawler with the ability to lift with a capability “one class up,” e.g. through the provision of the second counterweight 3. This is described as having the desirable effects of raising the height of the upper rotating body (col. 3, lines 25-35; col. 4, lines 11-14) and increasing the load capacity while maintaining the horizontal compactness (small width) of the compact crane (col. 4, lines 15-26).

Yokoyama thus teaches the importance of maintaining the small width of a compact crane body by sacrificing productivity: an additional component (the second counterweight) is required, which necessitates more complex inventory management. The claimed invention is not an obvious extension of these teachings and is instead based on improved productivity without concern for the crane width and permits reduced part inventory – the *opposite* of the teachings of Yokoyama.

Nor would Brown et al overcome the shortcomings of Yokoyama. Brown et al merely teaches that cranes “may be constructed in many different sizes and styles,” e.g., 5 ton or 15 ton (col. 3, lines 13-20). According to the final rejection, this description would have rendered it obvious in Yokoyama to “manufacture both light-weight cranes and larger cranes ... to sell cranes of various sizes or ‘classes’, as taught by Brown et al.”

Appellants do not disagree that it would be obvious, with or without the teachings of Brown et al, for a manufacturer to “manufacture both light-weight cranes and larger cranes” according to customer needs. However, this teaching would not have rendered it obvious for

one skilled in the art to modify Yokoyama according to the subject matter of Claim 20. That is, it would not have rendered it obvious for one skilled in the art to have modified Yokoyama to provide the *opposite* of what is actually taught therein: to provide that all models in a class share a common rotating frame and the rotating frame for each respective class is different from the rotating frames of all of the other classes (rather than its disclosure that a given frame can cross between classes), and that the common frame has specifications based on the model of that class having the largest lifting capacity (rather than its disclosure that the common frame is based on the smaller lifting capacity). Claim 20 therefore defines over this prior art.

#### **Claim 21**

Claim 21 further recites in part that the winch-side mounting portions are “common to models in the same class and different for other classes.” On the other hand, Yokoyama teaches that winches for the 80 ton class can be mounted to a body of the 65 ton class (col. 3, lines 61-67). This requires that the winch-side mounting portions must be the same for winches of both classes; again, the opposite of what is claimed.

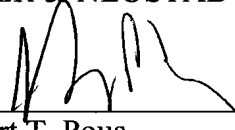
#### **Claims 22-27 are rejected under 35 U.S.C. § 103 as being obvious over Yokoyama in view of Brown et al and Harrison et al.**

Harrison et al was cited to teach the winch mounting arrangement of the dependent claims. However, Harrison et al does not overcome the shortcomings of Yokoyama and Brown et al with respect to Claim 21, and so the dependent Claims 22-27 define over any combination of the cited references.

Appellants therefore request that the final rejection be REVERSED.

Respectfully submitted,

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### **APPENDIX OF APPEALED CLAIMS**

Claim 20: A family of cranes having a plurality of classes of cranes, each class having a different lifting capability as compared to all of the other classes, each class further including a plurality of models, each model within a given class having a different lifting capability as compared to all of the other models in the given class,

wherein all of the cranes in the family of cranes comprise a lower traveling body and an upper rotating body rotatably mounted on the lower traveling body, the upper rotating body including a rotating frame and lifting equipment mounted on the rotating frame, the lifting equipment including a boom and a plurality of types of winches,

wherein all of the models included in each respective class share a common rotating frame, the common rotating frame of each respective class having specifications based on the model of that class having the largest lifting capacity, and the rotating frame for each respective class is different from the rotating frames of all of the other classes.

Claim 21: The family of cranes according to Claim 20, wherein the common rotating frame in each respective class includes rotating-frame-side winch mounting portions for mounting the winches on the rotating frame, each type of winch is provided with a winch-side-mounting portion, the winch-side mounting portion being common to models in the same class and different for other classes, and each winch is mounted on the rotating frame by means of the rotating-frame-side winch mounting portion and the winch-side mounting portion.

Claim 22: The family of cranes according to Claim 21, wherein left and right deck frames are provided on both the left and right sides of the rotating frame, and at least the



outer shapes and sizes of the left and right deck frames are common to all models in the same class.

Claim 23: The family of cranes according to Claim 22, wherein equipment is mounted on the left and right deck frames by means of mounting portions that are common to models in the same class.

Claim 24: The family of cranes according to Claim 22, wherein the left and right deck frames are divided into a plurality of sections on which different pieces of equipment are mounted.

Claim 25: The family of cranes according to Claim 24, wherein the sections of the left and right deck frames are separately mounted on the rotating frame.

Claim 26: The family of cranes according to Claim 25, wherein with respect to each section of the left and right deck frames, a plurality of types of sections on which different sizes of pieces of equipment are mounted according to the uses of the machine are mounted on the rotating frame with a common mounting structure.

Claim 27: The family of cranes according to Claim 25, wherein each section of the left and right deck frames is detachably mounted on the rotating frame.

**EVIDENCE APPENDIX**

None.

**RELATED PROCEEDINGS APPENDIX**

None.